

SECTION 09310 - CERAMIC TILE

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

As specified in Section 00700.

1.02 COORDINATION WITH OTHER SECTIONS

- A. Coordinate installation of waterproof membrane with MEMBRANE WATERPROOFING section.
- B. Coordinate installation of backer-rods, sealants and caulking at expansion and control joints with SEALANTS section.

1.03 SUBMITTALS

- A. Samples: Samples of various ceramic tiles and marble thresholds shall be submitted to the Engineer for approval and for color and pattern selection. Samples shall be identified as to their grade and manufacturer.
- B. Certificates: Before installation of ceramic tile, the Standard Form of Master Grade Certificate signed by the Contractor and Manufacturer stating grade and kind of tile shall be submitted to the Engineer. All packages of tile shall be delivered to the job in sealed cartons bearing grade seals in conformance with U.S. Department of Commerce Simplified Practice Recommendation R61-61.
- C. Warranties and Guaranties: Warranty for a min. of 2 years against defects resulting from the use of defective or inferior materials, equipment or workmanship.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Asbestos Prohibition: No asbestos containing materials or equipment shall be used under this section. The Contractor shall ensure that all materials and equipment incorporated in the project are asbestos-free.
- B. Ceramic Wall and Floor Tiles: Standard grade, complying with ANSI A137.1. The contractor shall submit test reports, from an independent laboratory, indicating conformance of the tile to ANSI A137.1 upon request of the Engineer.

This specification covers ceramic tile applied by conventional mortar setting bed method, not thin-set adhesive nor dry-set mortar methods. The use of this spec. must be tailored to your job.

If this specification is used, coordinate tile details with it. Draw details at threshold, wainscot, gutters, etc.

If threshold is cement or marble, include intended type in the specifications.

Be sure to include LATH AND PLASTER SECTION with appropriate specifications for the following:

Mortar set tile:

Portland cement
scratch coat on
metal lath, or
wire mesh
(paper-backed),
masonry or
concrete.

Thin-set tile:

Portland cement
scratch coat on
metal lath, or
masonry, or
concrete, with
addition of
brown coat to
level and
square surface
to thickness
required by
Tile Contr.

1. Ceramic wall tile and trims shall be dust-pressed, white non-vitreous body, 4-1/4" x 4-1/4" x 5/16" thick with a slightly beveled modified straight edge and bright glazed finish.
 2. Unglazed ceramic floor tile shall be standard quality, dust-pressed, machine made porcelain body tile, minimum 2" x 2" square with a slightly beveled modified straight edge, from price range group 2. Moisture absorption of the tile shall be less than 0.5%. Medleys consisting of not more than 3 colors may be selected.
 3. All trim shapes shall be provided as detailed and as required. External corners shall be rounded convex. Internal vertical corners shall be square. Top of wainscot shall be rounded with full (4-1/4") bull nose cap. Base tile shall be 4 inch high, sanitary coved base. Other shapes such as curbs, beads, shoes, round out corners and square in corners, etc., shall be provided to achieve a neat complete installation.
- C. Pointing Grout for Ceramic Tile: Commercial Portland Cement Grout, water-resistant, non-shrinking, white or gray as required, complying with ANSI 118.6 - Ceramic Tile Grouts.
- D. Cement: Portland Cement conforming to the requirements of ASTM C-150, Type I.
- E. Waterproof Admixture: Approved integral waterproof admixture.
- F. Sand: Conforming to ASTM C-144.
- G. Hydrated Lime: Conforming to ASTM C-206, Type S or ASTM C-207, Type S.
- H. Water: Fresh, clean and drinkable.
- I. Reinforcing Wire Mesh: 2 x 2 - 16/16 welded wire fabric, galvanized.
- J. Marble Threshold: Domestic Group "A" as classified by Marble Institute of America. Finish sand-rubbed or honed; size as detailed.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Before any work is begun, the Ceramic Tile Contractor shall inspect the walls and floors on which tile work is to be applied. Such surface shall be sound, clean, free of oily film, and in proper condition; if not, the Ceramic Tile Contractor should report defective conditions to the Contractor for corrective measures and send a copy of that report to the Engineer. Proceeding with tile work will imply acceptance of the surface by the Ceramic Tile Contractor. Scratch coats or mortar setting beds shall not be applied until necessary grounds, hangers, anchors or other items to receive plumbing fixtures or other fittings of any kind which are to be secured against the tile surface have been installed properly. Coordinate work with other trades as necessary.

3.02 INSTALLATION

A. Ceramic Tile:

1. Installation shall be in accordance with ANSI A108.1 - Glazed Wall Tile, Ceramic Mosaic Tile, Quarry Tile and Paver Tile Installation with Portland Cement Mortar and the "Handbook for Ceramic Tile Installation" as published by the Tile Council of America.
2. Work shall be carefully laid out in an endeavor to center the tiles, to space them evenly, and to avoid cutting them. If cutting is necessary, all cut ends shall be rubbed smooth and even. Lay out tile on floors and lengthwise on walls so that no tile less than 1/2 size occurs. For height stated in feet and inches, maintain full courses to produce nearest attainable heights without cutting tile. All cutting and drilling shall be done without marring the surfaces and shall be done neatly to fit closely around pipes, fixtures and fittings so that cover plates will overlap cuts.
3. Floor tile shall be laid in a straight joint pattern. Joints in wall tile shall be aligned vertically and horizontally. Staggering of joints through openings will not be

permitted.

B. Cement Mortar:

1. Mortar shall be freshly prepared and uniformly mixed in a drum-type batch mixer for at least 3 minutes in the following proportion by volume. No retempering of mortar will be permitted. Mortar that has reached its initial set shall be discarded.

2. For mortar setting bed on floors:

1 part	portland cement
6 parts	damp sand

Waterproof admixture in accordance with manufacturer's specifications.

3. For mortar setting bed on walls:

1 part	portland cement
5 parts	damp sand
1/2 part	hydrated lime

up to

1 part	portland cement
7 parts	damp sand
1 part	hydrated lime

(At showers, omit hydrated lime and add waterproof admixture in accordance with manufacturer's specifications.)

C. Setting Procedures:

1. On floors, apply mortar setting bed not less than 3/4" thick, over an area no greater than can be covered with tile before the initial set. If mortar setting bed is to be applied directly on concrete surface, first saturate the surface with water but do not allow free water to appear on the surface. Embed reinforcing wire mesh in the middle of the setting bed. Screed, tamp and slope the mortar setting bed toward the floor drains at a maximum slope of 1:50 (and/or slope as shown).

Use a 3/32" to 1/16" thick skim coat of neat

portland cement mixed to the consistency of a pasty thick cream to bond tile to the mortar setting bed. Press and beat the tiles into the plastic mortar setting bed until exactly to the required slope or level as fixed by straight edges accurately placed at regular intervals. Joints shall be of uniform width of 1/16" or as determined by the spacers on the tiles.

2. On walls, apply scratch coat mixed in the following proportions by volume:

1 part portland cement

4 parts dry sand

or

5 parts damp sand

1/2 part hydrated lime

or

1 part portland cement

3 parts dry sand

or

4 parts damp sand

Delete paragraph
(through "of 24 hours".)
when Lath and Plaster
Section which specifies
scratch coat mix and
application is included
in your job specs.

Dampen hollow concrete block surfaces just before applying the scratch coat. Apply scratch coat plumb and true to a thickness not less than 1/4". Use sufficient pressure to key the coat properly and cross scratch the surface before initial set has taken place. Allow to dry a minimum of 24 hours.

Apply mortar setting bed not more than 3/4" thick on walls after first wetting the surface of the scratch coat evenly but not to the point of saturation. Attach temporary screeds with blobs of mortar to provide a plumb and true surface the proper distance back from the finish wall line. Apply, rod, and float the mortar setting bed over areas no greater than will be covered with tile while the setting bed remains plastic.

Use a 1/32" to 1/16" thick skim coat of neat portland cement mixed to the consistency of a pasty thick cream, to bond tile to the mortar setting bed. Soak tile in water for at least 1/2 hour, press and beat soaked tile into the plastic mortar setting bed to a true plane with uniform joints of 1/16" width or as determined by the spacers on the tiles. Cut

NOTES TO ARCHITECT

through the setting bed horizontally and vertically at every fourth course.

3. Sound tiles after setting to ensure proper bonding. Hollow sounding tiles shall be replaced.
4. Allow tiles to set a minimum of 48 hours prior to grouting.

D. Thresholds:

1. Marble threshold shall be installed similar to ceramic tile as described hereinbefore where shown on plans. Clean as recommended by the manufacturer.
2. Cement threshold shall be installed where shown on plans and shall be shaped and troweled smooth.

E. Expansion and Control Joints: Install expansion and control joints as detailed on the contract drawings.

Be sure to locate expansion and control joints on the plans and show details.

F. Grouting and Pointing of Joints: Installation shall be in accordance with ANSI A108.10 - Installation of Grout in Tilework. Joints shall be be saturated with water and then grouted with a Commercial Portland Cement Grout mixed with an acrylic waterproofing admixture in accordance with the admixture manufacturer's specifications to a uniform creamy consistency. The grout shall be forced into the joints to the full depth. Use gray color for floors and white for walls. Take special care not to scratch glazed tile during this operation. Remove surplus grout before it has hardened and leave the face of the tile clean. Keep expansion and control joints free of grout.

G. Curing Floors: Apply reinforced kraft paper over floor as soon as pointing or grouting is completed. Lap the paper not less than 6 inches and leave in place for 3 full days.

NOTES TO ARCHITECT

- H. Cleaning: Upon completion of tile work, remove all rubbish, unused material, etc. and give the finished surface a thorough cleaning. Do not use acid solution on glazed tile work. Do not permit traffic on tile floors for 24 hours after laying. Thereafter permit no traffic unless floors are covered with heavy paper. Leave finished tile work clean and free from cracked, chipped or broken tile. Protect tile work and threshold until acceptance of project.

END OF SECTION